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A2 IN 8UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICEADDRESS REPLY TO  
CHIEF, FOREST SERVICE  
AND REFER TO

WASHINGTON

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PERSONNEL  
Recruitment

February 1, 1945

P.M. No. 45-12

Regional Foresters; Directors;  
Assistant Chiefs - W.O.

Dear Sir:

Attached is copy of a manuscript "The Interests of Forest Service Men", by Dr. Edward K. Strong, Jr., of Stanford University. This has been furnished us by Dr. H. B. English of Ohio State University who, as you know, is the present Chairman of the Council on Human Relations which has been collaborating with the Forest Service for some time - with Regional councils in some of our Regions. It is believed that this manuscript has not yet been made public, although since Dr. English proposed that it might be placed in the Journal of Forestry it apparently need not be considered as "confidential".

As pointed out in the last paragraph of the attached copy of Mr. Kotok's letter to Dr. English, this manuscript has "set us off on an 'orgy' of self-inspection and soul-searching". It will probably have a somewhat similar effect on you. Our purpose in sending it to you however is not to call for any specific action on your part but in order that you may have a background of a related program now being developed by Personnel Management. As soon as it is available it will be sent you for review.

Many here who have reviewed Dr. Strong's manuscript have found it to be very difficult reading. For that reason, and in order that a background for his study might be available, we have asked Dr. Winters of this office to prepare a review and analysis of it. Copy of his statement is attached.

The file may, of course, if you wish, be routed among the members of your Staff.

Very truly yours,

E. W. LOVERIDGE, Assistant Chief

Enclosures - 3

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January 18, 1945

To: E. W. Loveridge, Assistant Chief

From: R. K. Winters, Forest Products Division

Subject: R-Personnel, Training, Aptitude Tests  
(Dr. Strong's Manuscript "The Interests of Forest Service Men")

The main points made by Dr. Strong that bear on Forest Service policy are:

1. "Some data are given below which suggest that in the Forest Service the interests of district rangers and administrators differ so appreciably that it is questionable whether many of the former will or should be promoted to management. And it is furthermore questionable whether there are enough men in the lower bracket with the interests of administrators to supply the Service with properly qualified men at the top."
2. "Older men in the Service have lower interest scores using the Forest Service scale than do younger men. This is a phenomenon peculiar to the Forest Service. Other data presented in the article indicate that there is not a homogenous interest pattern for Forest Service personnel. There certainly are two distinct patterns; that of the ranger on one extreme and of the top administrator on the other. There may be recognizable intermediate patterns."
3. "Evidence presented in the article indicates that promotions, on the average, go to men with lower interest scores in mechanical pursuits, and higher scores in general administrative interests. Dr. Strong further states: 'The differences in interests of district rangers and administrators suggest that the man who is most typically a ranger is not likely to rise above the rank of supervisor and that promotions above the rank of supervisor are in terms of interests which are possessed by only a minority of district rangers.' And again, 'One cannot help wondering if the Forest Service is recruiting at the bottom enough men typical of top administrators to provide a good assortment from which in later years to select the leaders of the organization.' Further, 'The data suggest that district rangers are well selected for that work. But they do not possess the interests characteristic of administrators. Their pay is small considering their responsibilities. They should be rewarded by increased status and pay, not through promotion into a different type of work, but by keeping them on their present work for which they are suited and enjoy.'"

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4. "It certainly appears that there are not enough Forest Service men with the interests of recreation men to carry on such work enthusiastically. Since the interests of administrators directing public recreational work correlate significantly with the interests of administrators in general it is possible that adding such men to the Forest Service might result in increasing the number of younger men who would be selected later on for administrative work in the Forest Service."

I found Dr. Strong's article very difficult reading. A large part of this difficulty lies in the fact that he does not describe his vocational interest blank nor how it is scored. I shall describe his form and procedures in sufficient detail to permit the understanding of the data given in his article, quoting where necessary from his book, "Vocational Interests of Men and Women", published in 1943 by Stanford University Press.

"It is assumed that, if a man likes to do the things which men like who are successful in a given occupation and dislikes to do the things which these same men dislike to do, he will feel at home in that occupational environment. Seemingly, also, he should be more effective there than somewhere else, because he will be engaged, in the main, in work he likes."

Strong's Vocational Interest Blank consists of 400 items. "The person being tested responds by indicating whether he likes, dislikes, or is indifferent to each item. In addition to 100 items having reference to occupations, there are a list of amusements (golf, fishing, etc.), a list of school subjects (algebra, agriculture, etc.), a list of activities (repairing a clock, handling horses, etc.), and a list of peculiarities of people (progressive people, quick-tempered people, etc.) Part Six provides opportunity to indicate which three from a list of ten activities are most liked and which three are least liked. Part Seven asks for preference between two items, as for example: 'Deal with things or deal with people.' Finally, Part Eight calls for an estimate of one's present abilities and characteristics, as, for example, whether or not one can 'win friends easily.'" Each person filling out the blank is expected to indicate opposite each item whether he likes it, dislikes it, or is indifferent to it.

Dr. Strong has had hundreds of persons engaged in some 39 occupations fill out his interest blank. If the engineers, for example, fill out the form differently from farmers, it presumably can be used to identify persons with interests similar to engineers, farmers and others of the 39 occupations. The procedure for quantitatively measuring these differences is rather complicated, but the nubbin of the procedure is that if a person says he likes golf, for example, his Forest Service score may be affected by a minus 1. As a lawyer the fact that he likes golf might affect his lawyer score by plus 2 and as a dentist plus 3. For each of 39 occupations and for each of the 400 items a weight has been worked out for a "like", a "dislike", an "indifferent" or other appropriate check. The Forest Service interest scale is a table showing the weights for a "like", "dislike", and an "indifferent" check on each of the 400 questions. Similar scales have been



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worked out for each of the 39 professions and occupations with which Dr. Strong has worked. In determining the raw score of a person the examiner selects the proper table of weights, the Forest Service table for example, and lists the weight corresponding to each of the 400 checks on the filled-in interest blank. The algebraic sum of these weights is the raw score, in terms of the Forest Service scale, of the person filling in the blank. He might, and probably would, have a different raw score when rated in accordance with a lawyer's or a dentist's scale. Raw scores are translated into standard scores by appropriate formula. These standard scores as measured by the Forest Service scale (shown as averages) are shown in Table 1 of the manuscript. A high standard score presumably shows that an individual or group of individuals has interests very close to the average for the group or profession under consideration.

Table 1 of Dr. Strong's article shows that the scores of Forest Service men, when the Forest Service scale is used, decrease with age for all seven ranks. This is a phenomenon peculiar to the Forest Service. In explaining this phenomenon it seems to me that Dr. Strong has conclusively proved that the U.S. Forest Service is not one homogenous interest group, but two or several. In Table 2, for example, he shows that 88% of rangers score 40 and above on the Forest Service scale while only 38% of P-7 and P-8 men score that high when the Forest Service scale is used. When scoring is done by the farmers scale, 86% of the rangers get 40 or more but only 6% of the P-7 and P-8 men get as high. On the other hand, 100% of the P-7 and P-8 men score 40 and above when the public administrator scale is used, whereas only 38% of the rangers score as high.

The headings of Tables 3 and 4 are very misleading. The meaning would have been clearer if they had read, "Mean scores of District Rangers and P-7 and P-8 men by occupational groups in which rangers scored at least 4 points more (less in Table 4) than P-7 and P-8 men. Also differences . . . ."

In conclusion, it appears to me that the Service should use Dr. Strong's Vocational Interest Blank in its placement work. The present Forest Service scale is very largely based on Forest Service field men, Forest Rangers through Forest Supervisors, and should be valid for this group. I suspect that the present Public Administrator scale will serve to identify likely potential Forest Service administrators. It may be that Research men can be identified by using the scale for one of the physical or biological scientists. As a beginning I suggest that we have all P-1 and P-2 men fill out Dr. Strong's vocational interest blank. The scores made in accordance with these three scales should give us a helpful lead in visualizing possible career ladders for individual men and in planning training and work assignments designed to develop them to obtain their maximum contribution to the work load of the Service.

/s/ R. K. Winters

The first of these is the fact that the United States is a young nation, and that its history is a history of growth and development. It is a history of a people who have been able to adapt themselves to a new and changing world, and who have been able to maintain their principles and ideals in the face of adversity. The second fact is that the United States is a nation of immigrants, and that its history is a history of the struggle for assimilation and the achievement of the American dream. The third fact is that the United States is a nation of free men and women, and that its history is a history of the struggle for freedom and the establishment of a just and equitable society.

The history of the United States is a history of many great men and women, who have shaped the course of the nation. It is a history of George Washington, who led the nation through its first years of independence, and of Abraham Lincoln, who led the nation through its darkest hour. It is a history of the many men and women who have fought for the principles of freedom and justice, and who have made the United States what it is today. The history of the United States is a history of the people, and of the things they have done for the world.

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Aptitude Tests

January 18, 1945

Professor Horace B. English  
Ohio State University  
Columbus, Ohio

My dear Professor English:

Please accept my apologies for delay in returning Dr. Strong's manuscript, "The Interests of Forest Service Men".

A number of us here, including Mr. Watts, have studied this report carefully and several group discussions have been held on the points it raises. Very briefly, here are our comments:

1. The paper assumes that the reader will know a great deal about the technical procedures of a psychologist - actually more than all but a few foresters know. We therefore do not think the Journal of Forestry is the place to publish this paper. This weakness could, in part, be remedied by describing briefly Dr. Strong's vocational interest blank and how interest patterns are determined. Due perhaps to our unfamiliarity with technical concepts, we found the table and column headings difficult to understand. The table heading for Tables 3 and 4 are particularly misleading. These tables would, I believe, be more readily understood if headed "Mean scores of District Rangers and P-7 and P-8 men by occupational groups in which rangers scored at least 4 points more (less in Table 4) than P-7 and P-8 administrators. Also differences....". Also, the last two columns need a footnote to show whether mean scores of 30-year-old men are taken as the base, or 50-year-old men.
2. As to the conclusions of the study, we feel that Dr. Strong's study has emphasized the fact that we have in the Service at least two groups with distinctly different interest patterns. First, we have the field-going action group; and second, the policy-making top administrators. The field group includes men from Forest Ranger through the Forest Supervisor grade, the members of which are forced by the pressure of responsibility to be characteristically mechanically-minded and job-conscious in terms of building roads, trails, and buildings, and of handling equipment and properties generally, regardless of innate or potential interests. These are the men on which Dr. Strong based his Forest Service interest scale. The P-7 and P-8 policy makers, on the other extreme, are chiefly men who in response to the pressure of their

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2 - Prof. H. B. English - January 18, 1945

responsibility must deal successfully in ideas, concepts, and abstract things generally. Perhaps a group conforming to the field interest pattern is not the best pool from which to select administrators - even the relatively small number that must be selected in the Forest Service - but if the administrators were selected from some other group better adapted to the development of administrators, we should probably encourage a wider disparity of interests between these two important elements of our organization and suffer more as a result of this than from the present quality of our administrators. Perhaps in recruiting rangers we should consider two criteria: first, interests of field personnel; second, public administrator interests; and then among those selected according to the first criterion, give preference for advancement to higher administrative posts to those who made a good showing according to the second.

As a layman, it seems to me that we could safely use Dr. Strong's present Forest Service scale as the criterion for the field-going group, and his Public Administrator scale for the second. We should appreciate Dr. Strong's thought on this.

3. If Dr. Strong agrees with the above, the Forest Service would be interested in making trial use of his Vocational Interest Blanks with its personnel as an aid in placement and training.

Our group certainly does appreciate your sending this manuscript to us and wishes to thank Dr. Strong as a technical expert for taking a penetrating look at us and for giving us the benefit of his observations. Both you and he will be gratified to know that the points he raised set us off on an "orgy" of self-inspection and soul-searching.

With cordial personal greetings, I remain,

Very sincerely yours,

/s/ E. I. KOTOK

E. I. KOTOK, Assistant Chief



## THE OHIO STATE UNIVERSITY

Howard L. Bevis, President

Department of Psychology

College of Education

COLUMBUS 10

November 21, 1944

Mr. Ed Kotok  
Assistant Chief, United States Forest Service  
Washington, D. C.

My dear Kotok:

Strong of Stanford has just sent me his revision of "The Interests of Forest Service Men". This strikes me as a very significant paper which should be pondered carefully by many of you in Washington. I spoke to Watts about it when I saw him in Region 6 and he asked to see it. Will you see that he gets the paper? But I also bespeak your own reading.

I think it should be published, presumably in the Journal of Forestry, but not until some of you have a chance to suggest changes. The article seems to me in the main clear; I rather itched to revise it in spots to give it greater punch. But it raises definitely some thought provoking issues.

When you and Watts and others in the Washington Office have had a chance to go over the article and make your suggestions or comments, will you please return it to me. I am also awaiting with interest your comments on the report of my activities in August and September.

With cordial personal greetings, I am,

Sincerely yours,

(S) Horace B. English

Horace B. English  
Forest Service  
Collaborator

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## THE INTERESTS OF FOREST SERVICE MEN

Edward K. Strong, Jr.<sup>1/</sup>

Stanford University

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The top executive who has worked up from office boy has a profound belief that others could do likewise if they only would try hard enough. Is this true? Is willingness to work the major consideration or must abilities and interests also be taken into account? Suppose every non-supervisory position was filled with a well qualified man, would that insure a sufficient number for promotion to supervisory positions as vacancies occurred?

Many organizations, both public and private, maintain the policy of recruiting top management by promotions from below. Other organizations select men specifically for executive and administrative work and promote relatively few upwards from below. Personnel practices relative to selection and training reflect the policy of the organization involved. In far too many cases, however, no one in authority has ever definitely decided what the policy should be nor are the facts available upon which such a policy should be formulated.

Some data are given below which suggest that in the Forest Service the interests of district rangers and administrators differ so appreciably that it is questionable whether many of the former will or should be promoted to management. And it is furthermore questionable whether there are enough men in the lower bracket with the interests of administrators to supply the Service with properly qualified men at the top.

Another situation, seemingly unrelated to the first one, is considered here - a problem, however, which turns out to be intimately related to the first one. This second problem may be stated as follows: Since recreation has become an important activity in the forests, have Forest Service men become more interested in the handling of people? Is it possible to employ men with interests for both trees and people or are such men so uncommon that two different groups must be employed - one to handle trees and the other to handle people?

This second problem is related to the first since the evidence suggests that men interested in people rather than in trees have very much more the interests that characterize public administrators, so that the addition of recreation experts should seemingly increase the number of young men who later on would prove to be acceptable administrators in the Service.

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<sup>1/</sup> Dr. Strong is chairman of the Northern California Advisory Council on Human Relations, a group appointed by the A.A.A.S. to work in advisory capacity with the conservation agencies of government.

In 1936, through the cooperation of the United States Forest Service, 410 members of that Service filled out the Vocational Interest Blank. On the basis of these blanks an interest scale was developed to measure the degree to which a man has the interests of Forest Service men rather than the interests of men in general.

Such blanks may also be scored so as to reveal how similar a man's interests are to the interests of men in 35 other occupations. Thus, it is possible to say that a particular ranger has more the interests of an engineer than of a Forest Service man and to say that a supervisor has not only the interests of a Forest Service man but also to a lesser degree the interests of a production manager, a personnel manager, a public administrator, and an office man. Such a supervisor might be expected to function somewhat differently from one who had an equally high Forest Service interest but whose secondary interests were those of an engineer, farmer, aviator, and policeman.

The data in this report are based upon the original group of 410 men plus about 50 additional cases of supervisors and regional and Washington administrators, obtained in 1941 in connection with a study of public administrators, financed by the Committee on Public Administration of the Social Science Research Council.

The data pertain to interests - what a man likes and also dislikes to do. The data do not include measures of general or specific abilities. Interests and abilities must both be considered before a final answer to the questions before us may be obtained. But what a man is interested in does play an important role and it is this aspect of his behavior with which we are concerned here.

#### SCORES OF FOREST SERVICE MEN ON FOREST SERVICE INTEREST SCALE

As stated above, the Forest Service interest scale is based upon the records of 410 men, whose average age in 1936 was 38.5 years. Approximately half were district rangers; all but three of the remainder were assistants to supervisors, assistant and associate supervisors, and supervisors. In terms of rank the criterion group averages just above that of district ranger. Forest Service interests as measured by the scale, represent the interests of men from district ranger to supervisor.

Table 1 gives the Forest Service interest scores of 430 men, distributed by age and rank in the Service.<sup>1/</sup>

The data make clear that such scores decrease with age for all seven ranks in the Service. The decrease in score amounts to only 4.8 from age 27.5 to 47.5 years, whereas it amounts to 15.7 from age 47.5 to 62.5 years.

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<sup>1/</sup> The classification of Forest Service men and the follow-up referred to below, were made by Paul P. Pitchlynn, formerly assistant regional forester at San Francisco. The 410 blanks constituting the criterion group were also obtained largely through his efforts.



TABLE 1. Number of Forest Service Men by Age and Rank; and Mean Forest Service Interest Score of each Sub-Group

Age		25	30	35	40	45	50	55	60	Total
District	N	37	38	40	30	24	13	7	-	189
Rangers	M	53.2	52.5	51.5	47.5	46.0	47.9	38.2	-	50.0
Assistant to	N	11	3	3	-	-	-	1	-	18
Supervisor	M	47.8	60.7	45.3	-	-	-	39.0	-	49.1
Assistant	N	10	28	18	4	9	3	1	-	73
Supervisor	M	54.1	52.7	52.1	40.5	46.2	46.3	37.0	-	50.8
Associate	N	1	6	4	3	-	1	-	-	15
Supervisor	M	40.5	51.7	47.8	50.0	-	54.0	-	-	49.7
Supervisor	N	-	18	17	11	30	11	12	-	99
	M	-	47.5	47.5	51.1	48.3	48.9	41.3	-	47.5
P6	N	-	-	-	1	4	10	2	3	20
	M	-	-	-	50.0	50.0	44.2	31.0	37.3	43.3
P7 and P8	N	-	-	-	1	1	4	8	2	16
	M	-	-	-	43.0	50.0	39.5	30.6	30.5	34.8
Total	N	59	93	82	50	68	42	31	5	430
	M	52.1	51.8	50.4	47.8	47.3	46.5	37.0	34.6	48.6 <sup>(a)</sup>

(a) Only 3 of the P6 and none of the P7-P8 were included in the criterion group. If they were excluded and 13 cases, not so far classified, were included, the mean standard score of 410 criterion cases would be 50.

Decrease with age in score on the Forest Service interest scale is a phenomenon strikingly peculiar to the profession. Data similar to those in Table 1 have been published for 29 occupations.<sup>1/</sup> The average decrease in score for these 29 occupations including Forest Service amounts to 1.4 between the ages of 27 and 57 years, whereas the decrease is 15.7 for Forest Service men. There are appreciable decreases in score amounting to 10.5 for personnel manager, 7 for aviator, 5 for realtor and physician, and 4 for life insurance salesman. The only occupation exhibiting increase of score on its own scale is that of minister where the increase amounts to 6.9 score. For most occupations age affects interest scores very little but for some reason the reverse is the situation in the Forest Service group.

<sup>1/</sup> E. K. Strong, Jr. Vocational Interests of Men and Women. Stanford University Press, 1943. Table 75.

This phenomenon explains in part why some successful Forest Service men score low on the Forest Service interest scale. They score low because they are older men and all older men average considerably below 50.

In many previous studies of occupational careers it has been found that men who do not have the typical interests of their profession (these men get scores of 25 or less on the interest scale and are graded "C" <sup>1/</sup>) usually are not very successful in their occupation or are pursuing their work in some atypical fashion. How is it with Forest Service men? Nearly all the men with "C" grades were rated as successful! Evidently here is a paradox. How valid is a scale which rates successful men as not having the interests of their group?

Well who are these successful men? In general older men; and in the Forest Service the older men tend to have atypical interests.

The question naturally arises as to why forest interest scores decline with age among Forest Service men. Three possible explanations may be considered: first, such interests actually decline with age; second, there has been a change in the type of men entering the Service and the younger men, constituting the larger proportion of the criterion group, have largely determined the norms for the group; and third, men with high scores leave the Service in later life to a larger degree than men with lower scores.

The preponderance of data in our possession does not support the first explanation, that the kind of interests possessed by Forest Service men naturally decline with age. For example, when samples of 25-, 35-, and 45-year old men drawn at random from the population are scored on the Forest Service interest scale the mean scores are respectively, 28, 27, and 31, indicating a slight rise in score with age. <sup>2/</sup>

How about the second explanation? In the early years of the Forest Service few men were college graduates, whereas in recent years many have been recruited from colleges, particularly from schools of forestry. It might be supposed that the younger college men would score differently from the older non-college men. Opposed to this supposition is the fact that there is no difference in the score of 24 college and 26 non-college graduates among supervisors. It is still possible that the selection has changed, resulting in a change in Forest Service interest scores but we have uncovered no definite proof of this.

The third explanation, that Forest Service scores decline with age because older men with high scores leave the Service to a larger degree than those with low scores, can be established only by long time follow-up of the men so far tested on the Vocational Interest Blank. Evidence presented <sup>below</sup> indicates

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<sup>1/</sup> An A rating (scores of 45 to 75) means that the individual has the interests of men successfully engaged in the occupation; a C rating (scores below 25) means he does not have such interests; and a B rating (25 to 44) means he probably has those interests but we cannot be as sure of the fact as in the case of A ratings. Note that a C rating does not say a man is not interested in a particular vocation; it says he does not find interesting a whole range of things which successful men in the occupation do find interesting.

<sup>2/</sup> ibid, p. 272.



that promotions, on the average, go to men with lower interest scores in mechanical pursuits and higher scores in general administrative interests. It is therefore possible that some men with high Forest Service interest scores have left the Service when they failed to receive a promotion and that there have been enough such cases to explain the decrease in average scores with age.

#### OCCUPATIONAL INTERESTS OF FOREST SERVICE MEN

So far we have considered only how far Forest Service men score on the Forest Service interest scale. Consider now how they score on other occupational interest scales.

Table 2 gives the percentage of rangers, supervisors, and administrative officials who rate A and B+ (scores of 40 to 75) in interest for 36 occupations. Such percentages indicate how many Forest Service men definitely have the interests of men in those occupations. For example, 88 percent of rangers rate A and B+ on Forest Service interest in comparison with 82 percent of supervisors, 55 percent of P6 officials, and 38 percent of P7 and P8 administrators. As explained above much of these differences are attributable to increasing age as we go from district ranger to P7 and P8 administrator, but we suspect not all.

Forest Service men have in general the interests of skilled tradesmen (Group IV), particularly farmers; of production managers; of engineers; and of public administrators. Few of them have the interests of scientists (Groups I and II), office workers (Group VIII), salesmen (Group IX), lawyers-writers (Group X), and men engaged in social service (Group V).

TABLE 2. Percentage of Forest Service Men  
Rated A and B+ on Occupational Interests  
(i.e., percentage scoring 40 and above)<sup>(a)</sup>

Group	Occupation	49 District Rangers	44 Super- visors	20 P6 Washington & Regional	16 P7 & P8 Washington & Regional
	Forest Service	88	82	55	38
III	Production Manager	64	55	55	57
IV	Skilled Trades				
	Farmer	86	59	50	6
	Carpenter	35	11	5	0
	Aviator	36	27	35	6
	Printer	28	13	15	0
	Policeman	34	23	35	6
	Math. Sci. Teacher	34	21	25	6
II	Physical Sciences				
	Engineer	36	32	40	38
	Chemist	24	12	35	31
	Mathematician	0	0	5	6



Table 2 - Continued

Group	Occupation	<u>49 District Rangers</u>	<u>44 Super- visors</u>	<u>20 P6 Washington &amp; Regional</u>	<u>16 P7 &amp; P8 Washington &amp; Regional</u>
VIII	Office Activities				
	Office Work	26	16	30	13
	Banker	18	28	20	12
	Accountant	10	13	15	13
	Purchasing Agent	22	29	20	25
IX	Sales Activities				
	Realtor	22	29	10	0
	Sales Manager	6	25	20	0
	Life Insurance	8	11	15	6
XI	President	16	18	20	32
V	Social Service				
	Public Administrator	38	66	85	100
	Personnel Manager	14	23	50	38
	Y. Physical Director	14	4	15	6
	Social Sci. Teacher	8	11	30	19
	City School Supt.	2	11	25	19
	Y.M.C.A. Secy.	4	7	31	12
	Minister	0	5	5	6
X	Linguistic Activities				
	Author-Journalist	8	14	10	31
	Lawyer	6	25	5	44
	Advertising Man	4	12	5	19
VI	Musician	6	0	0	0
I	Biological Sciences				
	Physician	16	14	15	25
	Architect	8	2	10	25
	Dentist	10	9	5	0
	Artist	2	2	10	6
	Psychologist	0	0	10	12
VII	Certified Public Accountant	0	2	0	6

(a) The 49 rangers are a selection from 190 cases, so selected that the mean forest interest score and standard deviation of the 49 cases are practically the same as for the 190 cases. The 44 supervisors were similarly selected from 100 cases. The 20 P6 and 16 P7 and P8 administrators are all the cases in our possession. The P6 group contains 5 men stationed at Washington and 15 at regional offices. The P7-8 group contains 5 regional foresters and 11 men stationed in Washington.

Commenting upon Table 2, a former administrator of the Service writes: -  
 "It explodes the old fiction that Forest Service men are scientists. True, some of us have had a little scientific training and some perhaps is a good thing, but we attempt to recruit scientists as rangers. Those we get go in one of three directions: some quit, some get transferred to research work, and some become frustrated and are no good to themselves or the Service."

There are some striking differences between the interests of district rangers near the bottom of the organization and the administrators at the top. Such differences are indicated fairly well in Table 2, especially in the case of those occupational interests in which a fair number of Forest Service men are interested. Such differences are, however, better shown by mean scores, for such take into account the men who score low as well as those who score high. Differences as high as four<sup>1</sup>/<sub>in</sub> mean scores between district rangers and P7-P8 administrators are given in Tables 3 and 4, the former giving the occupational interests which decrease and the latter the occupational interests which increase, as one goes from district ranger to administrator. (In nearly every case the mean scores of supervisors and P6 administrators lie very close to a plotted line connecting ranger and P7-P8 administrator. This fact adds support to the conclusions drawn from the data of district rangers and P7-P8 administrators alone.)

The interests which decrease (Table 3) are for the most part typical of mechanical activities whereas the interests which increase (Table 4) are much more varied being associated with administrative work, law-journalism, and social work.

The differences in interest scores in these two tables indicate that administrators differ in their interests from district rangers and, to a lesser degree, from supervisors. The differences imply that administrators are selected on a different basis from that used in the original selection of district rangers. This relationship will be found in most organizations, for administrators differ from the rank and file both in abilities and interests.

One of the most notable differences in interests between district rangers and P7-P8 administrators is in the interests of public administrators. Only 38 percent of district rangers rate A and B+ compared with 66 percent of supervisors, 85 percent of P6 administrators, and 100 percent of P7-P8 administrators.

<sup>1</sup>/<sub>Differences of 7 to 8 are statistically significant, i.e., have critical ratios of 3.0 and over, judging from a number of calculations, for example:-</sub>

	Forest Service		Farmer		Public Administrator		Personnel Manager	
	Diff	C.R.	Diff	C.R.	Diff	C.R.	Diff	C.R.
Ranger vs Super.	5.0	2.3	5.0	2.8	4.5	2.4	5.5	2.4
" P6	8.0	2.9	7.0	3.0	11.5	4.8	12.5	4.3
" P7-P8	16.0	6.1	14.5	7.6	12.0	5.9	11.0	3.7
Super. vs P7-P8	12.5	4.8	9.5	4.7	7.0	3.4	5.5	1.9



TABLE 3. Occupational Interests in which rangers score at least 4 more than P7-P8 administrators. Also differences in scores of younger and older rangers and supervisors

	District Rangers <sup>(a)</sup>	P7 & P8	Difference	Difference in Scores of 30- and 50-year old men	
				Rangers	Supervisors
Forest Service	52.5	36.5	-16.0	-10.3	2.0
Farmer	47.5	33.0	-14.5	2.3	2.5
Aviator	38.0	25.0	-13.0	- 7.0	- 1.0
Policeman	37.5	23.5	-14.0	7.5	4.0
Carpenter	36.0	14.5	-21.5	7.7	9.5
Printer	35.5	24.0	-11.5	.7	5.0
Math. Sci. Teacher	35.0	29.0	- 6.0	- .5	3.5
Purchasing Agent	33.5	29.5	- 4.0	2.5	- .5
Realtor	33.5	29.5	- 4.0	2.7	- 1.0
Office Worker	31.5	26.5	- 5.0	3.7	3.5
Dentist	30.0	21.5	- 8.5	1.1	2.0
Y. Physical Director	27.5	23.0	- 4.5	- 3.2	- .5

(a) The rank order of occupations based on A and B+ ratings of rangers in Table 2 agrees very closely with rank order based on mean scores of rangers, some of which are given in this and Table 4. (The correlation between the two is .976).

TABLE 4. Occupational Interests in which rangers score at least 4 less than P7-P8 administrators. Also differences in scores of younger and older rangers and supervisors

	District Rangers	P7 & P8	Difference	Differences in Scores of 30- and 50-year old men	
				Rangers	Supervisors
Public Administrator	39.5	51.5	12.0	-11.0	- 4.0
President	30.5	35.5	5.0	.7	- 5.0
Personnel Manager	28.0	39.0	11.0	-13.8	- 4.0
Author-Journalist	27.0	34.0	7.0	- 2.8	- 3.0
Lawyer	25.5	37.5	12.0	- 5.5	- 2.0
Advertising Man	25.0	33.0	8.0	- 4.0	- 5.5
City School Supt.	21.5	34.0	2.5	- 7.3	- .5
Y.M.C.A. Secy.	21.5	25.5	4.0	- 2.3	2.5
Mathematician	20.5	25.5	5.0	- 3.3	.5
Minister	16.0	22.5	6.5	- 4.8	3.5
C.P.A.	18.0	30.0	12.0	- 7.3	- 6.5
Psychologist	13.5	25.5	12.0	- 9.8	- 3.0



The public administrator scale is new. It is based on the interests of 518 men engaged in public administration. Included in the group are 46 supervisors and administrators of the Forest Service. The data in Table 2 are based on these 46 men and in addition 34 supervisors-administrators and 49 rangers not included in the public administrator criterion group.

Scores on the public administrator scale correlate highest with scores on the scales of personnel manager (.75), city school administrator (.55), Y.M.C.A. secretary (.53), social science teacher (.53), and Y.M.C.A. physical director (.52). Since Forest Service administrators rate so very much higher than rangers on the public administrator scale it is to be expected that they will score higher on the social service occupations. The data in Table 2 do not show such increases except in the case of personnel manager. This is because, with the exception of personnel manager, few Forest Service men score high on these occupational interest scales. Examination of mean scores shows, however, a steady rise in these interests from ranger to P7-P8 level (see Table 4). But it must be emphasized that at the top level the mean score is 39 on the personnel manager scale, 34 on the city school administrator scale, 29 on the social science teacher scale, and 25 to 22 on the other three social service scales. Forest Service men on the whole score low on the social service scales, scales which are related significantly to the interests of public administrators. This is true even of the Forest Service administrators.

#### Younger Men More Similar to P7-P8 Administrators than Older Men

The fourth column in Tables 3 and 4 gives the difference in mean scores of 30- (25-34) and 50- (45-54) year old rangers. Most of the differences are reversed from those between district rangers and P7-P8 administrators. That is, the older rangers differ from top administrators more than younger rangers. The same conclusion applies equally well to younger and older supervisors (last column in Tables 3 and 4).

The following correlations between interest profiles of groups of Forest Service men tell the same story:

30- vs 50-year-old rangers	.861
30- vs 50-year-old supervisors	.888
30-year-old rangers vs P7-P8	.402
50-year-old rangers vs P7-P8	.105
30-year-old supervisors vs P7-P8	.769
50-year-old supervisors vs P7-P8	.569
P6 vs P7-P8	.578

The interests of younger and older rangers are quite similar, the same is true of supervisors. Rangers' interests are not very similar to the interests of P7-P8 administrators, but the interests of the younger rangers are somewhat more similar than those of the older rangers. Supervisors' interests are much more akin to the interests of top administrators, particularly is this true of the younger supervisors, whose interests are more similar to P7-P8 men than the interests of P6 administrators<sup>1/</sup>.

<sup>1/</sup> The difference of .297 between the two correlations of different age groups of district rangers has a critical ratio of 1.4 and the difference of .200 between the two groups of supervisors has a critical ratio of 2.3. Neither of these differences is statistically significant.



The differences in interests of district rangers and administrators suggest that the man who is most typically a ranger is not likely to rise above the rank of supervisor and that promotions above the rank of supervisor are in terms of interests which are possessed by only a minority of district rangers. Our former administrator comments, "time after time I have seen our top rangers promoted only to lose interest and become mediocre, or at least no longer outstanding." A very real problem here as elsewhere is "how to determine in advance who will respond to promotion and who will not."

What we know about interests indicates that they are fairly permanent, especially among adults. There are cases where they have changed appreciably but such appear to be exceptions to the rule. If we employ the data on younger and older district rangers and supervisors as indicative of the changes attributal to increasing age then such changes are in the wrong direction - older men are less like administrators than younger men. If we assume that interests are fairly permanent and that the above changes are not attributal to increasing age then it would appear, as suggested above, that some older men with distinctly ranger but not administrative interests are dropping out of the Service when promotions are not forthcoming.<sup>1/</sup>

One can not help wondering if the Forest Service is recruiting at the bottom enough men typical of top administrators to provide a good assortment from which in later years to select the leaders of the organization.

#### Recreational Interests

In early days the Forest Service was concerned with the management of forest land involving lumbering, grazing, the construction of roads and buildings, and the fighting of fires. Then, the public discovered the forests were a wonderful place for a vacation. This has focused greater emphasis upon the activity of handling people. Under the circumstances it is natural to ask, do the men selected for the original purposes of the Service also possess the interests of men dealing with people? Is there any evidence that the younger men who have been selected in recent years have more social interests than the older men?

If we postulate that the occupations in Group V (see Table 2) typify the men who "handle others for their presumed good," then we can measure the extent that Forest Service men possess social interests by noting their scores on the occupations in this group. Reference to Table 2 makes clear that few Forest Service men have such interests. The percentages are low for five of the six occupations and not at all high in the case of the sixth, i.e., personnel manager.

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<sup>1/</sup> The data suggest that district rangers are well selected for that work. But they do not possess the interests characteristic of administrators. Their pay is small considering their responsibilities. They should be rewarded by increased status and pay, not through promotion into a different type of work but by keeping them on their present work for which they are suited and enjoy.



If we postulate that the interests of public administrators engaged in recreational work typify the social interests which Forest Service men should now possess we may then employ the interests of recreational men as a standard against which to check Forest Service interests. The nine occupational interests on which recreation administrators score 35 and higher are given in Table 5. It will be seen that six of the nine constitute the occupations in Group V referred to above. It will also be recalled that these interests correlate significantly with the interests of public administrators in general.

TABLE 5. Interests of Recreational Administrators. Also Differences in Scores of Recreation Men and Forest Service Men

<u>Occupational Interests</u>	<u>Mean Score of Recreation Administrator</u>	<u>Differences in Score between Recreation Men and</u>			
		<u>District Rangers</u>	<u>Super- visors</u>	<u>P6</u>	<u>P7-P8</u>
Public Administrator	48	- 8	- 4	3	4
Personnel	44	-16	-10	-3	- 5
Social Science Teacher	44	-17	-16	-12	-14
City School Supt.	42	-20	-15	-12	- 8
Y.M.C.A. Secy.	41	-19	-16	-12	-15
Y. Physical Director	40	-12	-12	- 9	-17
Lawyer	36	-10	- 1	- 5	2
Math.-Science Teacher	35	0	- 4	0	- 6
Minister	35	-19	-17	-12	-12
Average Deviation		-13.4	-10.5	- 7.5	- 9.2

Forest Service men score low on most of the interests listed in Table 5 (differences of 8 are statistically significant in most every case). There is better agreement between the interests of recreation administrators and Forest Service men as we go from ranger to P7-P8 administrator with the exception that P6 administrators are slightly more similar to recreation administrators than P7-P8 administrators.

When all 36 occupational interests are taken into account instead of only nine, as in Table 5, we have the following correlations between the interest profiles of recreation administrators and sub-groups of Forest Service men:

Recreation vs	30-year-old district rangers	- .01
"	" 50-year-old district rangers	- .06
"	" 30-year-old supervisors	.34
"	" 50-year-old supervisors	.31
"	" P6	.51
"	" P7-P8	.35

Evidently there is no relationship between the interests of recreation administrators and the interests of rangers, only a slight relationship in the case of supervisors and P7-P8 administrators, and some relationship in the case of P6 administrators.

The above correlations between the interests of recreation administrators and Forest Service men may be compared with the following correlations between recreation administrators and eight other groups of public administrators:

Recreation vs Personnel men in public service	.80
" " Social Insurance administrators	.75
" " Welfare administrators	.86
" " Publicity men	.29
" " Statistician	.16
" " Public Health officials	- .12
" " Engineers	- .25
" " Chemists-Physicists	- .42

Seemingly, if the Forest Service is to handle the problem of recreation within the forests it must have men in the organization who understand such problems and genuinely enjoy dealing with them. Such interests are different from the interests of the typical forest man. Two ways to meet the situation occur to us. First, bring into the Service men who possess both types of interest. Second, bring into the Service men who are possessed of the recreational type of interest, to be specialists in this field. The former is a doubtful procedure because there are not many men who possess both sets of interests. (Forest Service interests correlate with the interest of the occupations listed in Table 5, as follows:

Public administrator	.21
Personnel manager	- .01
Social science teacher	- .13
City school superintendent	- .25
Y.M.C.A. secretary	- .07
Y.M.C.A. physical director	.39
Lawyer	- .61
Math.-science teacher	.68
Minister	.00

The latter procedure will force a rearrangement by which recreational activities will at least be directed, if not carried on, by specialists. This is not as convenient as the present procedure of having rangers carry on all types of activities. Whatever the organization it certainly appears that there are not enough Forest Service men with the interests of recreation men to carry on such work enthusiastically.

Since the interests of administrators directing public recreational work correlate significantly with the interests of administrators in general it is possible that adding such men to the Forest Service might result in increasing the number of younger men who would be selected later on for administrative work in the Forest Service.